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**Migration and Health Outcomes:  
The Case of a High Migration  
District in South Punjab**

**Shujaat Farooq**

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**PAKISTAN INSTITUTE OF DEVELOPMENT ECONOMICS**

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## **ABSTRACT**

Given the importance of health in overall living standard of people, the present study has attempted to probe into the role of migration in affecting health status and outcomes of population. The health spending patterns of migrant households, both overseas and within-country, have been analysed and compared with those of non-migrant households to see whether there is some difference in the magnitude and trends of their spending on health care facilities or not. Data from both primary (Remittances and Health Survey, RHS) and secondary (Pakistan Social and Living Standards Measurement (PSLM) survey) sources have been utilised to get robust results and bridge the data deficiencies in order to get reliable estimates. Exploratory data analysis has been conducted on both the PSLM and RHS while propensity score matching (PSM) is done on the RHS data. The study finds that generally the households receiving remittances from abroad are better off in terms of various indicators of health as compared to households receiving remittances from with-in the country or those who do not receive remittances at all.

*JEL Classification:* I12, I15

*Keywords:* Overweight, Obesity, Physical Activity

## 1. INTRODUCTION

Human nature responds to incentives which ultimately improve economic and social well-being. Migration is one of the incentives which yield multidimensional well-being through remittances both in short and long term. The short-term effects include increase in consumption and reduction in poverty and inequality, while the long term effect is socio-economic development i.e. higher earnings, human capital formation including education and health and creation of assets and durable goods [Vidal (1998)]. Moreover, due to their significant input to welfare transfers, remittances act like a safety net for relatively poor segments of the society [Jones (1998)].

Levitt (1998) terms remittances as "social transfers", which may include flow of ideas, behaviours, identities and social capital, from destination community to the migrant or transfers-recipient society. Such social transfer is 'fuel' for recipient places as it can boost up entrepreneurship, political integration and community formation. Though both of the constructive and destructive aspects are associated with social remittances, yet a positive contribution to overall social development is made by some forms of remittances such as the exchange of health, educational and social practices and transfer of new business skills [Mara, *et al.* (2012)].

The economic paybacks of remittances also improve insurance and financial markets by raising investment in both the human and physical capital [De Haas (2007)]. The question arises, *do remittances improve household health welfare or not?* The empirical strand found mixed results by avowing both the positive and negative aspects. According to the former view, remittances improve child nutrition, reduce child mortality and improve health care services [Dorantes, *et al.* (2007) and Dorantes and Pozo (2009); Daniel and López (2012)]. The monetary transfers can also affect health by relaxing liquidity constraints that would otherwise restrict access to health care. Kanaiaupuni and Donato (1999) argue that, despite the initial disruptive effects of family separations, over time, as migration becomes "institutionalised" and the household receives monetary remittances, infant mortality significantly drops. The negative linkages mainly stress the adverse health consequences of remittances through social and cultural channels as Kanaiaupuni and Donato (1999) has linked it with increase in infant mortality due to family disruption. Social remittances may permit some adverse effects through habits and lifestyles [Levitt (1997)]. Migrant individuals can import contagious diseases and

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disseminate them to the community i.e. tuberculosis and HIV aids [Perez-Stable, *et al.* (1986); Kanaiaupuni and Donato (1999)]. It is worth mentioning that the ongoing study has covered only the positive aspects of migration.

*Are remittances more likely to be applied to health expenditures?* There is a variety of reasons to suggest that responsiveness of household health care expenditures to remittance might differ from that to other sources of income. First, remitters may have greater control over how remittances are spent, thus leading to differences in intra-household bargaining. The remitter may structure periodic inflows to ensure that his/her desires are carried out [Dorantes and Pozo (2009)]. Second, the sensitivity of health expenditures to increases in remittances may differ from increases in other income because of differences in the predictability of the two inflows. For example, if remittance income is more variable relative to other income, it might be used differently. Such idea follows the Permanent Income hypothesis of Friedman (1957) and Life-Cycle hypothesis of Ando and Modigliani (1957) that unexpected income is more likely to be saved while less predictable income will encourage financial (health) asset accumulation. Regardless of the reason behind the differential tendency to use remittance income versus other income on health care, understanding the differences between the two propensities can inform us on policies more suited to alleviating health care deficiencies. The present study covers the following three objectives:

- (i) To investigate the impact of remittances (internal and external) on health seeking behaviour of the migrants' families in Pakistan;
- (ii) To observe the household's expenditure patterns in utilising remittances especially for health financing and the outcome of those expenditures in the form of various health indicators; and
- (iii) To estimate the welfare impact of remittances on child health including immunisation, malnutrition and maternal health.

To fulfil the above mentioned objectives, this study has used the primary dataset from the Remittances and Health Survey (RHS), 2015 conducted by Pakistan Institute of Development Economics (PIDE) in district D.G Khan with a sample size of 409 households. The rest of the study is organised as follows. Section 2 presents an overview of migration and health in Pakistan followed by a brief review on remittances and health situation in Section 3. The data sources and methodology used in the paper are discussed in Section 4. Section 5 discusses the socio-demographic, migration and economic profile of sampled households as obtained from the RHS survey while the impact of remittances on health welfare is examined in Section 6. Section 7 presents the stylised facts at district level to understand the migration pattern and use of health care services. The final section presents the conclusions of the study and draws some policy recommendations.



## 2. MIGRATION AND HEALTH IN PAKISTAN

With rising knowledge, awareness, necessities and opportunities, migration—both external and internal—has been growing in Pakistan. Presently the stock of overseas Pakistanis is around 7.8 million with substantial growth over the years.<sup>1</sup> Remittances inflows were only \$412 million in 1976, \$1,075 million in 2000 but were around \$16 billion in 2014, with on average \$1 billion addition in each year since 2001. The 2012 Pakistan Social and Living Standards Measurement (PSLM) survey reveals that more than 6 percent of the households in Pakistan have been receiving remittances from outside Pakistan while more than 10 percent have been receiving from within the country. Limited access to land and better economic opportunities in urban areas along with increase in education, have been escalating migration both within district/province and across the districts/provinces of Pakistan. Memon (2005) found rising trends of internal migration in Pakistan and similar finding has been made by the 2012 LFS estimates that inter-province migration is growing with urbanisation and development in Pakistan.

With the statistical evidence of movement of people for better economic opportunities, the next question that comes to mind is how fruitful their migration has been in terms of overall well-being of their families. Health is an important welfare dimension that immediately affects the quality of one's life. Effective health provision is one of the important components of inclusive growth which can not only improve the human capital of a country but it can also reduce the poverty and inequality by controlling catastrophic health expenditures. Compared to other South Asian countries, Pakistan's performance to achieve progress in MDGs has remained dismal. While there has been an improvement in the education sector, health remains on the periphery of the development landscape in Pakistan. With the eighth highest newborn death rate in the world and the proportion of underweight children, the infant mortality rate has not witnessed any significant decline. These poor health indicators not only hamper the household current socio-economic well-being (poverty reduction, sending children to school) but they also limit the household's capacity to perform better in the labour market. A number of studies on migration and remittances have been conducted in Pakistan by linking them with growth [Javid *et al.* (2012)], poverty [Viqar, *et al.* (2010)], education [Nasir, *et al.* (2011), Arif (2004)], labour supply [Arif (2004)] and household welfare [Abbas, *et al.* (2014)], however, limited literature was found to link remittances with health behaviour. Keeping in view the significant contribution of both the within-country and overseas remittances to Pakistan economy, it is important to observe the remittances-health nexus in Pakistan. The present study aims to fill this gap by using both the secondary and primary cross-sectional datasets to observe the

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<sup>1</sup><http://beoe.gov.pk/migrationstatistics/1971-14%20%28upto%20Dec%29/CAT-1971-2014.pdf>

health seeking and utilisation behaviour of three types of remittance-receiving households: overseas receiving households, within-country receiving households (within-country but outside of district) and non-receiving households.

### 3. REVIEW OF LITERATURE

The impact of remittances on various dimensions of welfare of remittance receiving household has been a focus of attention for quite some time. In case of developing countries where the phenomenon of migration is observed extensively and where welfare still remains a goal that largely falls short of achievement, it is even more important to analyse how migration is affecting the recipient country and particularly the recipient households.

A strand of literature focuses on the expenditure patterns of remittance receiving households and finds that most of the remittances are spent on current consumption, education and health [Finkle and McIntosh (1982); Keely and Saket (1984); Chilivumbo (1985)]. However the studies focusing exclusively on health care expenditures are relatively few in number. The evidence in this regard can be loosely classified in two groups: those who point towards negative linkage between the migration of household members and the health care expenses of the non-migrant household members and those who present a positive linkage. Initially, when the members of households migrate to another place it may lead to increase in infant mortality owing to disruption in the family setup [Kanaiaupuni and Donato (1999)]. Moreover, as a consequence of migration, children may not be breastfed properly and may be less likely to be vaccinated according to the given schedule [McKenzie (2006)]. Social remittances in the form of customs and way of life may also contribute to bad health conditions [Levitt (1997)]. There are cases in which the migrant household members import contagious diseases and disseminate them to the rest of household members such as tuberculosis [Perez-Stable, *et al.* (1986)]. Migration of household members especially to Sub-Saharan Africa plays a vital role in the spread of HIV in certain communities [Economist (2000)].

The strand of literature that provides evidence for positive influence of remittances on the health of non-migrant household members covers a wide spectrum of activities which can be influenced due to increased income and knowledge of the recipient communities. The health expenditures may increase in the migrant family members as a result of increased income in the form of remittances [Dorantes, *et al.* (2007) and Valero-Gil (2008)]. Kanaiaupuni and Donato (1999) suggest that when migrants send back the remittances to their home place, it considerably reduces the infant mortality. In addition, the remittances may be used to improve the overall health of family and the newly born babies usually enjoy high birth weights [Frank and Hummer (2002)]. Moreover it is argued that migration increases knowledge of mother in the context of health that may improve the health of their babies [McKenzie (2006)] which results in better health outcomes of migrant's family members as compared to non-migrant families.

Dorantes, *et al.* (2007) using the ENIGH dataset investigate the impact of remittances on primary care along with hospitalisation and find that hospitalisation expenses are highly responsive to remittances. Migrants' household members on average spend 5 percent to 9 percent of their remittance based income on primary health care services. Their study falls short of one major factor i.e. whether it is remittances or income from other sources that they spend on health care services. They also neglect the difference in marginal propensities to consume health care services out of remittances by taking into account various household income strata and health care coverage. Valero-Gil (2008) also uses the same dataset as that of Dorantes, *et al.* (2007) and state that 10 percent of remittances are used to consume health care services in Mexico but this study does not concentrate on the issue of endogeneity of remittances and household expenditures.

Levitt (1997) further argues that the availability of money in the form of remittances relaxes the liquidity constraints and this monetary transfer makes it possible for the households to spend on health care that may result in improved overall health of the migrant families. Those municipalities in Mexico that receive higher inflows of remittances experience lower levels of infant mortality while municipalities with lower migrants remittances have to bear higher infant mortality rate [Cordova (2005)]. Airola (2007) while studying the economy of Mexico argues that migrants' households spend a large share of their income on healthcare, housing and durable goods. Massey and Parrado (1994) insist that by and large the most important goal of migradollars from USA to Mexico was the maintenance of family that includes expenditures on health, food and clothing. According to the data around 48 percent of migradollars inflows were spent on the maintenance of family while 10 percent of the total inflows were allocated to housing. In view of Dorantes and Pozo (2009) international remittances do stimulate the expenses on health care, based on their research work they believe out of every 100 peso increment in remittance income people of Mexico spent 6 peso on health care. The health care expenditures are 3 times more sensitive to the variation of remittance based income rather than income associated to other sources. Furthermore in case of low-income households, expenses on health care are less responsive to remittance based income.

Migrants' transfers also contribute a lot in the construction of hospitals and clinics especially in Mali and Democratic Republic of Congo [Sumata (2002) and Martin, *et al.* (2000)]. Due to migration, the awareness about the health also increases, this knowledge of health and monetary resources together improve the child birth weight and reduce infant mortality [Hildebrandt, *et al.* (2005)]. Ponce, *et al.* (2011) using the instrumental variables approach do not find any significant long run impact of remittances on child health variables in case of Ecuador. The study argues that although remittances do not affect child health variables in the long run but they do enhance health expenses on de-worming and vaccination. In case of

Ecuador, households use remittances for preventive as well as emergency situations and migration also improves the knowledge of health.

Remittances not only affect health through health care expenses but they also contribute positively through the acquisition of better life style and healthier conditions like improved housing and refrigeration of food etc. [Duryea, *et al.* (2005)]. Migrants on their return to home country put into practice improved health environment i.e. safe drinking water and better sanitation.<sup>2</sup> This improved infrastructure due to inflow of remittances further explains the decline in infant mortality. Dorantes, *et al.* (2007) based on their research on Mexican communities conclude that health care expenditures are more responsive towards income from remittances than any other source of income. As the remittance inflows include the monetary as well as non-monetary inflows like social remittances and there are chances that the latter set out the priorities of migrant households' toward investment in human capital by increasing expenses on healthcare activities. Hospitalisation expenditures are also very high in migrant households, 5 percent to 9 percent of the remitted income is spent by these households on the primary health care services. Drabo and Ebeke (2010) analyse the impact of remittances on health care services in case of developing countries. They find that remittances are essential for the recipients countries' access to health care services. Remittances especially in case of intermediate income class, direct to a sectoral glide in the utilisation of health care services from public to private sector.

A review of existing literature suggests that the evidence regarding the impact of migration on various dimensions of welfare is mixed. It turns out that there exist differences in the behaviour of remittance receiving households and their circumstances that will ultimately determine the final benefit that accrues to such households. Hence it is more insightful to analyse the impact in terms of case studies for different regions instead of generalising the results for all.

## **4. DATA AND METHODOLOGICAL FRAMEWORK**

### **4.1. Data Description**

Both the secondary and primary data sources have been used to analyse the potential welfare impact of remittances on health seeking behaviour of households. Regarding secondary data sources, the Pakistan Social and Living Standards Measurement (PSLM)-2012 has been used to study the impact of overseas migration on maternal health and immunisation pattern at the district level. Keeping in view the data limitations in secondary dataset, the study conducted a primary survey "Remittances and Health Survey (RHS)" from District Dera Ghzai (DG) Khan, Pakistan in early 2015 to acquire the required information for deep remittances-health analysis.

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<sup>2</sup> UNDP, Human Development Report (2009).

District DG Khan has been selected for two reasons. First, the area is highly important to observe household's health seeking behaviour as like other Southern Punjab districts, the socio-economic deprivation is high in DG Khan compared to the Central and North Punjab. PSLM 2012 estimates reveal that DG Khan stands at 35<sup>th</sup> rank on literacy and child immunisation out of the 37 districts of Punjab. On average, 51 percent of the births in Punjab take place in hospitals while this number is only 18 percent for DG Khan. Second, majority of the leading overseas remittances districts in Punjab are located in North Punjab. However, DG Khan has become an emerging source of overseas migration over the last few years. During 2008-2014 period, DG Khan has witnessed a tremendous rise in overseas employment as the annual average registered overseas employment growth stood at 58 percent.<sup>3</sup> Being a socio-economically poor and emerging remittances district, it would be useful to observe the remittances-health nexus particularly how remittances-receiving households differ from the non-receivers on health financing and health outcomes including immunisation, malnutrition and quality of health services.

A sample of 409 rural households has been selected from district DG Khan by targeting three types of households: 38 percent of the households have at least one of their members working abroad, 35 percent households having at least one of their members working outside of the district but not abroad and the remaining 27 percent of the households have none of their employed members either abroad or outside the district.

The questionnaire of the Survey of Remittances and Health (RHS) was structured in both English and Urdu and divided into seven parts. Section 1 covers the household demography and educational information while Section 2 covers the employment history of household members and sources of household income. The details of both within-country and overseas migration along with remittances amount and utilisation are given in Section 3. Both the food and non-food consumptions including paid and unpaid were precisely asked in Section 4. Section 5 covers the information on distance to health facility, type of health facility, disease/sickness history, expenditures on health and source of health expenditure. The two sub-sections of section 6 provide the information on child nutrition and vaccination including the height and weight of both the child and mother along with the information on pre-natal and post-natal care of reproductive married women. The detailed information on housing including assets and pre and post migration economic and social status as reported by households are given in Sections 7 and 8, respectively.

All the questionnaires have been conducted through face-to-face interviews. The effective communication skills matter a lot for the reliability of data, therefore, 15 professional female local interviewers who already had the field survey experience were hired. They were given a detailed brief on research

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<sup>3</sup><http://www.beoe.gov.pk/migrationstatistics/1971-14%20%28upto%20Dec%29/Dist-wise-1981-2014.pdf>

objectives, targeted population, coding of questions and probing of respondents. The core intent of each question was explained to and discussed with them and then they were asked to conduct the pilot survey and again interviewing problems were discussed and resolved at initial stages of the field work.

#### 4.2. Methodology

Keeping in view the migration quality aspects, this study has classified the households in three categories: overseas remittances households, within-country remittances receiving households and non-receiving remittances households. Using the PSLM 2012 survey, overseas migration pattern was linked with maternal health and immunisation across the districts. For deeper analysis, the ongoing study has used the primary RHS dataset. Both the bi-variate and multi-variate analysis have been carried out to observe the remittances-health nexus. In the bi-variate analysis, the potential impact of three types of remittances receiving households (overseas remittances receiving households, within-country remittances receiving households and non-receiving households) on various socio-economic and health indicators has been analysed. The social indicator includes the child enrolment status (ages 5-14) while the economic indicator includes per-capita household's monthly consumption expenditures. The perception of both the remittances receiving groups (overseas remittances receiving households and within-country remittances receiving households) on pre and post migration economic and social status has also been analysed to see whether remittances have improved the social and economic status of households after migration or not. As the main objective of the study is to analyse remittances-health nexus, therefore, various health indicators have been taken to observe the potential difference of remittances on health including; duration of sickness, type of utilised health facility, amount of health expenditure, child malnutrition, immunisation, and pre-natal and post-natal care of reproductive married women. The cross-tabulation along with Pearson chi-square test is used for analysis.

The standardised anthropometric measures of height-for-age z-score (HAZ), weight-for-age z-score (WAZ) and weight-for-height z-scores (WHZ) have been used to measure malnutrition among children of under 5 age. In order to avoid selection bias, Propensity Score Matching (PSM) technique developed by Rosenbaum and Rubin (1983) has been applied to analyse the welfare impact of remittances on health rather than other methods, like logistic regression analysis or paired observation.<sup>4</sup>

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<sup>4</sup>A number of earlier conducted studies [Yang and Choi (2007); Suleri and Savage (2006); Dorantes, *et al.* (2007); Dorantes and Pozo (2009)], suffer from potential biasedness in estimation. The core issue is that the remittances might be received by economically better off household so they might spend more amount on health and education. Taking the mean outcome of both the nonparticipants as an approximation is not advisable as the participants (remittances receiver) and nonparticipants (non-receiver) usually differ over socio-economic characteristics even in the absence of treatment or the program participants were purposely selected for, known as "selection bias".

As mentioned earlier this study has classified the households into three categories on the basis of status of households regarding remittances, however, for PSM analysis we need two categories; “treated” household and “non-treated” households. Therefore, the study has considered overseas remittances-receiving households as the “treated” households while both within-country and non-receiver remittances households have been treated as “non-treated” because of close similarity of socio-economic status of both the combined households. The estimation of welfare impact through PSM comprises of two steps. In the first step, we estimate the determinants of remittances through logistic regression model by the following equation;

$$rem_i = \alpha_0 + \alpha_1 I_i + \alpha_2 hh_i + \varepsilon_i \quad \dots \quad \dots \quad \dots \quad \dots \quad (1)$$

The dependent variable  $rem_i$  is binary in nature having two outcomes; remittances receiver and non-receiver households. There are two sets of explanatory variables on the right hand side of the model,  $I_i$  is a vector of individual characteristics like gender of head of household, his/her education and age, and  $hh_i$  represents household characteristics like household size and dependency ratio. Using PSM approach, remittance-receiving households have been matched with households having similar characteristics (household size, age, education, gender and marital status) but do not receive remittances. Treated units are matched to the non-treated units on the basis of the propensity score:

Before estimating the PSM, two conditions should be met to estimate the *Average Treatment on the Treated* (ATT) effect based on the propensity score (Rosenbaum and Rubin, 1983). The first condition is the balancing of pre-treatment variables given the propensity score. If the balancing hypothesis is satisfied, the pre-treatment characteristics must be the same for the target and the control groups. The second condition is that of unconfoundedness given the propensity score. If assignment to treatment is unconfounded, conditional on the variables pretreatment, then assignment to treatment is unconfounded given the propensity score. Using equation 1, first the propensity scores are calculated through logistic regression, and then the *Average Treatment on the Treated* (ATT) effect is estimated.

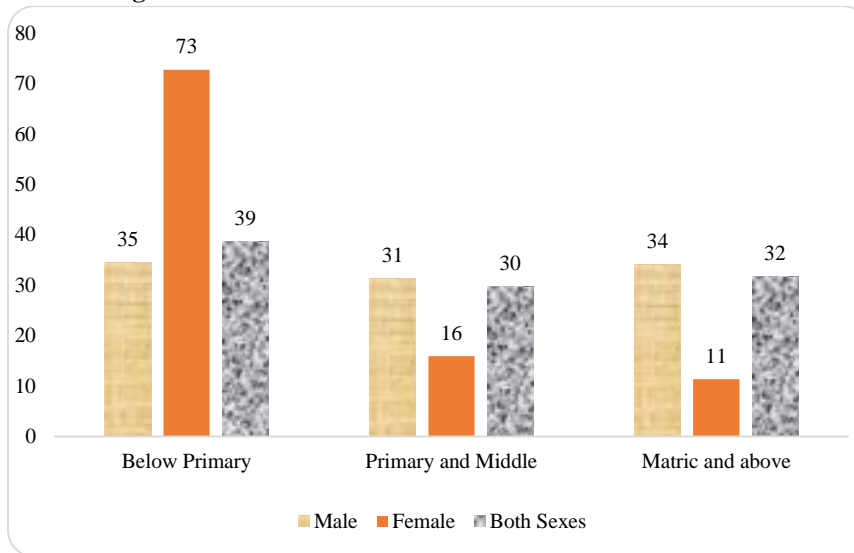
In the sense that ATT parameters focus directly on actual treatment participants, they determine the realised gross gain from the welfare programme and can be compared with its costs, helping to decide whether the programme is successful or not (Heckman *et al.*, 1999). However, calculating the effect through ATT is not immediately obvious since the propensity score is a continuous variable. To overcome this problem, four different methods have been proposed in the literature: the Nearest Neighbour Matching; Kernel Matching; Stratification Matching; and Radius Matching, [Becker and Ichino (2002)]. This study uses the first three methods.

## 5. SOCIO-DEMOGRAPHIC MIGRATION AND ECONOMIC PROFILE OF HOUSEHOLDS: RHS DATASET

### 5.1. Socio-Demographic and Economic Profile of Sampled Households

As detailed in Section 4 a sample of 409 rural households has been selected from district DG Khan to observe remittances-health nexus where 38 percent of the sample was taken from those households who have at least one of their household members working abroad, followed by 35 percent from those households having at least one of their members working outside of the district but not abroad and the rest 27 percent of the households have none of their employed members either abroad or outside the district. The average household size was 6.6 members with a slightly smaller household size of overseas remittances receiving households than the other two groups; within-country remittances receiving households and non-receiver households. Around 8 percent of the sampled households were headed by females; both types of remittances receiving households show a modest more female headship compared to non-receiver, primarily it might be due to migration of male members of the household. Literacy rate (age 10 years and above) among the sampled households was found 57 percent, with higher literacy among males (68 percent) than females (49 percent). No significant difference was found in the education of the head of the household among the three types of remittances receiving households, however, gender difference in education prevails as there are more educated male heads of households than female (Figure 1).

**Fig. 1. % Distribution of Education of Head of Household**



Source: Authors' estimation from the micro-data of RHS, 2015.



Distinct variation on type of employment of working members by three types of remittances receiving households can be seen in Table 1. Individuals belonging to overseas and within-country households are mainly engaged in paid employment activities while the majority of the non-receiver households' members are in self-employed category. There are more employers in within-country category as these people might run their own businesses in other cities of Pakistan. There are less unpaid workers among the overseas remittances receiving households. The results reveal that remittances improve the quality of employment as overseas remittances receiving households have been facing lesser issues of vulnerable employment (43 percent), while this number is 47 percent for within-country remittances receiving households and the highest, 61 percent, for non-receiver households. Overall, paid workers constitute the largest group (46.4 percent) followed by own account workers/self-employees (36.1 percent), contributing family workers (14.3 percent) and employers (3.1 percent).

Table 1

*% Distribution of Employed Workers by Type of Employment  
and Status of Remittances*

Employment Status	Overseas	Within-country	Non-Receiver	Overall
Employer	0.5	7.1	1.8	3.1
Employees	56.6	45.8	36.8	46.4
Own account worker	33.1	35.9	39.4	36.1
Contributing family workers	9.8	11.2	22.0	14.3
Total	100	100	100	100

*Source:* Authors' estimation from the micro-data of RHS, 2015.

As reported by respondents, the average monthly earning for overseas employed workers was Rs 43.5 thousand, Rs 13.3 thousand for within-country but outside of district employed workers and Rs 13 thousand for those who are working within district, suggesting higher earning for overseas category but almost same earnings for the latter two categories. As found in literature, these higher overseas remittances could make these households comparatively better off by investing more on human capital, education and health care [Mara, *et al.* (2012)].

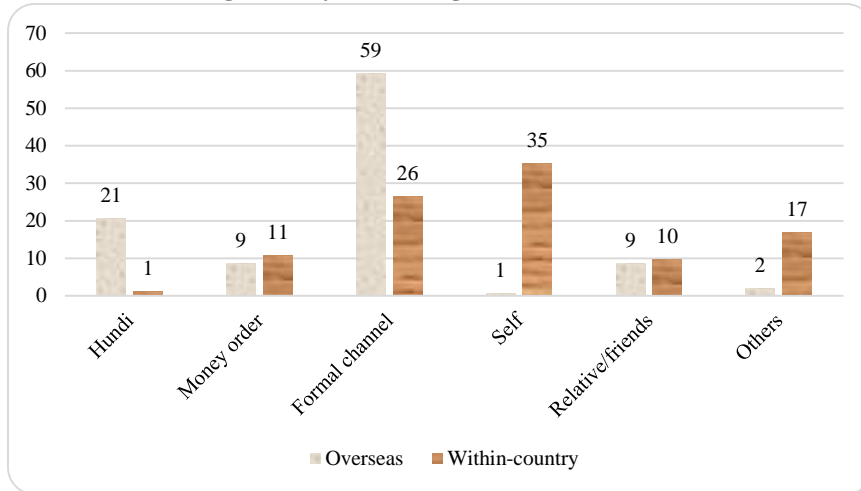
## 5.2. Migration History of Sampled Households

In the RHS survey, a comprehensive module covers the information on destination of migration, purpose of migration, duration, amount of remittances and way of sending remittances and major utilisation heads of remittances i.e. education, health, asset building, etc. Regarding destination, almost all the overseas migrant workers are in Middle East countries, especially in Saudi

Arabia and UAE. Within-country migrant workers are scattered in all the regions of Pakistan, however, Karachi, Lahore, Islamabad and Faisalabad are the major destinations of these within-country migrant workers. Karachi alone contributes nearly one-fourth while this number is around 18 percent for Lahore. More than two-third of the within-country migrant workers are working in urban areas. Better economic opportunities is the main purpose of both the overseas and within-country migrant workers.

On an average, overseas migrant workers send Rs 430 thousand (Rs 65 thousand per person) during the last one year while within-country migrant workers send Rs 140 thousand (Rs 21 thousand per person) during the same period. Almost three-fourth of both the types of migrant households receive remittances on monthly basis, however, within-country migrants send remittances more smoothly than the overseas remittances as there are some overseas workers who send remittances on irregular basis or only in case of an emergency etc. Self is the major source of remittance for within-country migrants while banks and formal channels are the major source of remittance for overseas migrants (Figure 2).

**Fig. 2. Way of Sending Remittance (in %)**

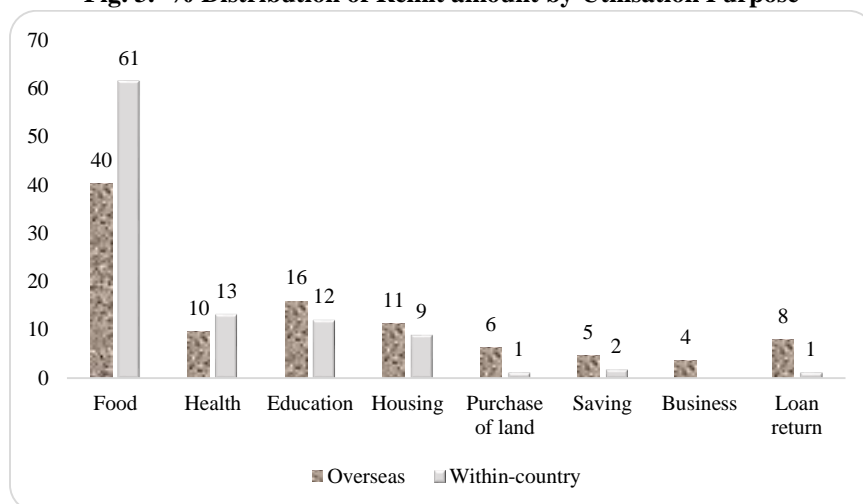


Source: Authors' estimation from the micro-data of RHS, 2015.

Households were also asked to report three major utilisations of remittances money in order of magnitude. Their first priority is reported in Figure 3 which shows that food, education and health is the major utilisation of within-country remittances receiver households. They are also spending minor share on asset building, saving and business etc. Overseas remittances receiving households are also consuming major proportion of remittances for food but they are also spending some amount on purchase of assets, savings and

businesses. Around 8 percent of the remitted amount in overseas remittances receiving households has been utilised to repay loans they might have taken for overseas employment etc. Though not listed here, education, health and asset building are the major priorities of overseas remittances households while education and health for within-country remittances households are their 2nd and 3rd priority.

**Fig. 3. % Distribution of Remit amount by Utilisation Purpose**



Source: Authors' estimation from the micro-data of RHS, 2015.

### 5.3. Consumption Expenditures and Socio-Economic Well-being

The households were also questioned to report their food and non-food expenditures including the consumed unpaid expenditures, made through earned in-kind, own production and gift and transfer shape. Based on per-capita monthly income, the results in Table 2 show that overseas remittances receiver households have, on average, higher per capita monthly consumption of Rs 6243 compared to the within-country remittances receiver households with Rs 3753 and non-receiver remittances households with their per capita monthly consumption of Rs 4101. Unlike per capita income level, here the non-receiver remittances households have higher consumption expenditure than the within-country remittances receiver households. The results in Table 2 also reveal smaller food share of overseas remittances households and high share of some non-food items including education, health, social-custom (death, marriages), clothing etc. Compared to the within-country remittances receiver households and non-receiver households, their consumption expenditure is more skewed towards luxury items and human capital formation than the other two types of households. All this illustrates that overseas remittances could be a significant

source for raising income level, diversification of resources and consumption expenditures, thus making these households better off. Both the income and consumption profiles suggest that within-country remittances receiver and non-receiver are almost very close in terms of consumption/income welfare. It might be due to the quality of migration which did not leave substantially positive effects on within-country migrant households.

Table 2

*Percentage of Monthly Consumption Expenditures by Commodity Group and Status of Remittances*

Commodity Group	Overseas	Within-country	Non-Receiver	Overall
Food and Beverages	45.5	49.1	50.2	48.3
Eat food outside of home	4.1	2.5	2.4	3.0
Socio-customs	6.4	3.2	3.3	4.3
Clothes/shoes/cloth material	6.5	4.4	4.7	5.2
Health and medicine	6.1	5.5	5.3	5.6
Cinema/sports/entertainments	3.3	2.7	3.3	3.1
Soap/laundry/hygiene and cosmetics	4.8	3.9	2.8	3.8
Electricity, gas and telephone	6.8	5.9	6.9	6.5
Education/books/newspaper	5.5	5.0	5.3	5.3
Traveling within country	4.2	4.7	4.5	4.5
Cash wages of staff	3.4	2.9	3.8	3.4
Others	4.3	9.3	7.5	7.0
Total	100	100	100	100
<b>Per capita Monthly expenditures (Rs)</b>	<b>6243</b>	<b>3753</b>	<b>4101</b>	<b>4805</b>

Source: Authors' estimation from the micro-data of RHS, 2015.

Though results are not listed in the table, overall 56 percent of the households have pucca walls, with more pucca houses for overseas migrants (62 percent), followed by 55percent for within-country remittances households and 49 percent for non-remittances households. On average, 2.4 persons live in a room: this number is 2.1 for overseas migrant, 2.6 for within-country migrants and 2.5 for non-migrant households. All the overseas remittance receiving households have toilets in their houses while 91 percent of the within-country remittances receiving households and 95 percent of the remittances non-receiving households have toilet in their houses. Forty-two percent of the non-remittances receiving households own some land, followed by 38 percent of the overseas remittances receiving households and 27 percent of the within-country remittances receiving households, with an average of 35 percent for all the sampled households who own some land. Overall, 38 percent of the sampled households own livestock with higher livestock ownership among non-remittances receiving households compared to remittances receiving households.

Both types of remittances receiving households were asked to evaluate their pre and post remittances social and economic status on the likert scale. They ranged from 1 to 10 on two questions: 1) *suppose you rank the richest*

household of your area as 1 and the poorest household as 10. Now keeping this ranking in mind answer your economic status before migration and after migration, 2) suppose the highest social status of a household is ranked as 1 in your area and the lowest social status as 10. Now keeping this ranking in mind put your social status before migration and after migration. The results in Table 3 show that both the overseas and within-country remittances receiving households have reported improvement in their social and economic status due to remittances while comparing them with the locality in which they are residing.

Table 3

*Average Pre and Post Migration Economic and Social Status*

Type of Remittances	Before migration		After Migration	
	Economic Status	Social Status	Economic Status	Social Status
Within-country	6.2	6.2	4.9	4.7
Overseas	6.0	6.1	4.6	4.4
Overall	6.1	6.1	4.7	4.5

Source: Authors' estimation from the micro-data of RHS, 2015.

## **6. IMPACT OF REMITTANCES ON HEALTH SEEKING, UTILISATION AND HEALTH WELFARE**

In this section, the health seeking behaviour and utilisation and impact of remittances on health welfare have been observed for all the three types of remittances receiver households: overseas receiver, within-country but outside of district receiver and non-receiver at national level as well as for specific region. Health welfare is defined by various indicators including; health seeking from good health practitioner, improvement in child nutrition (underweight, stunting and wasting) and vaccination and consultation of prenatal and postnatal care. The details are given in following sub-sections.

### **6.1. Health Seeking and Utilisation Behaviour**

As reported earlier, around 6 percent of the households in Pakistan have been receiving remittances from outside Pakistan. Table 3 shows that at national level higher percentage (96 percent) had medical consultation compared to D. G. Khan (73 percent). Further analysis by both the datasets shows that majority of the remittances receiver sick members have consulted private doctor/hospital for treatment. Another notable feature is that overseas migrant household primarily use formal sources for treatment including private as well as public sources while the use of informal practitioners like Hakeem etc. is higher among non-migrant households. One reason for this use could be the cost of services. The

cost of informal practitioners like Hakeem is relatively low as compared to the formal sources of treatment. It is worth mentioning here that private doctor/hospital is assumed to provide better quality of health services compared to the government hospitals in Pakistan.. Ironically though all the households belong to rural areas yet only a minor percentage has reported consultation with Rural Health Centre (RHC/BHU), reflecting the poor quality of services.

Table 3

Type of Consultation	Overseas	Within-country	Non-Receiver	Overall	Pearson chi-square
<b>At National Level (PSLM)</b>					
Consulted for Treatment during diseases	95.4	95.3	96.0	95.9	5.3 (0.110)
If Yes whom you consult for treatment					
Private doctor/ hosp./dispensary	71.2	71.0	69.7	69.9	45.2
Govt. hosp./dispensary	27.0	25.3	25.7	25.7	(0.000)
Hakeem/Homeopathic etc.	1.8	3.7	4.7	4.4	
Total	100	100	100	100	
<b>In DG Khan (RHS)</b>					
Consulted for Treatment during diseases	75.0	73.2	69.9	72.7	1.5
If Yes whom you consult for treatment					(0.471)
Private doctor/hosp./dispensary	92.8	63.2	77.4	78.2	
Govt. hosp./dispensary/BHU	4.1	24.2	10.4	12.8	53.4
Hakeem/Homeopathic etc.	3.1	12.6	12.2	9.1	(0.000)
Total	100	100	100	100	

Source: Authors' estimation from the micro-data of PSLM 2012-13 and RHS-2015.

Regarding child immunisation progress, evidence shows that around 96 percent children were immunised at the national level; this percentage is at 72 for DG. Khan. Disaggregated analysis by both datasets (PSLM and RHS) reveals no major difference in immunisation coverage among the three types of migrant households (Table 4). This again highlights the role of remittances in health services seeking behaviour of the household. Regarding, maternal care, the statistics by both datasets show higher utilisation of pre-natal care during pregnancy among the overseas migrants but no distinctive difference between within-country migrant and non-migrant households. Though not listed in table, we find interesting results that the use of hospital and personal doctor is higher among migrant households than the non-migrant while the use of TBA, LHW and LHV is higher among the non-migrant than migrant households. This, again, indicates that the cost of services plays an important role in making such choices. The households prefer better quality services if they have enough resources as in case of migrant households due to remittances. Similar pattern has been observed in case of post-natal care (Table 4).

Table 4

*Child Immunisation and Maternal Care and Status of Household*

Type of Consultation	Overseas	Within-country	Non-Receiver	Overall	Pearson chi-square
<b>At National Level (PSLM)</b>					
Child Immunisation	97.3	96.5	95.4	95.6	1.7 (0.171)
Pre-Natal Care	77.7	69.0	69.1	69.0	1.4 (0.061)
Post-Natal Care	32.5	23.1	28.6	28.4	1.5 (0.061)
<b>In DG Khan (RHS)</b>					
Child Immunisation	72.1	73.4	71.2	72.3	1.3 (0.231)
Pre-Natal Care	72.4	68.0	69.1	72.4	1.1 (0.111)
Post-Natal Care	28.3	25.1	26.6	28.3	1.4 (0.093)

Source: Authors' estimation from the micro-data of PSLM 2012-13 and RHS-2015.

Table 5 shows the highest per capita annual health expenditures for overseas migrant households amounting to Rs 1598, while the lowest for non-remitter households amount to Rs 1254, with an average annual per capita health expenditure of Rs 1397. In the RHS survey, the four categories of health expenditures were asked about expenditures on consultation/fee, medication/associate supplies, transport and laboratory tests. On average, the share of medication in overall health expenditure is more than half for all the households except remittances non-remitter households. The share of consultation and transport in total health expenditure is almost equal i.e. around 17 percent while laboratory tests contribute around 11 percent in total health expenditures (Table 5). Remittances are the major source of health financing for both the overseas and within-country households while household income and savings are used for this purpose by the non-remitter households. The non-remitter group seems to be at low wellbeing compared to the other groups as a significant group of around 8 percent has financed health expenditure through loans. In the second and third source of health financing, remittances receiver households have been financing health expenditures from savings and income while the non-remitter have been financing from loan, saving and some households by selling assets and getting assistance from others (not listed in table). The remittances receiving households were asked to report the share of remittances in total health expenditures, and we found this number at around 16.5 percent.

Table 5

*% Distribution by Share of Consultation Expenditures and Status of Remittances*

Type of Consultation	Overseas	Within-country	Non-Receiver	Overall
Consultation	11.9	15.5	27.6	17.8
Medicine	57.4	55.6	47.9	54.0
Transport	14.2	21.1	17.1	17.4
Laboratory	16.5	7.8	7.4	10.8
Total	100	100	100	100
<b>Annual per Capita Health Expenditures (in Rs)</b>	<b>1,598</b>	<b>1,469</b>	<b>1,254</b>	<b>1,397</b>

Pearson chi-square: 48.4 (0.051)

Source: Authors' estimation from the micro-data of RHS, 2015.

Regarding nutritional status, malnutrition has been measured by three anthropometric indices: weight for age, height for age and weight for height.<sup>5</sup> The results as reported in Table 6 show alarming estimates of malnutrition as calculated by the three anthropometric indices. The numbers are much higher than the national estimates which might be due to limited data sample or due to higher deprivation in this particular region. Mixed results were found across the gender on underweight, stunting and wasting where male children are facing more issues of underweight and wasting while there is higher incidence of stunting among female children. Only overseas remittances make a vital distinction of improvement in nutrition of a child both among male and female children compared to the other two groups. Children belonging to within-country remittances receiving households are facing more issues of underweight than even non-receiver category; they both are close on stunting and wasting.

Table 6

*Child Nutrition Status by Sex and Status of Remittances*

Malnutrition Status	Sex	Overseas	Within-country	Non-Receiver	Overall	Mean Z score	National Average*
% Underweight	Overall	51.2	57.3	53.9	54.2	-1.9	
	Male	52.5	58.4	54.2	54.5	-1.9	31.5
	Female	50.4	56.3	53.1	53.8	-1.9	
% Stunted	Overall	64.8	68.4	68.1	66.6	-2.2	
	Male	63.6	68.1	67.5	66.8	-2.1	43.7
	Female	65.9	68.9	68.7	67.3	-2.3	
% Wasted	Overall	21.4	25.7	24.6	23.3	-1.1	
	Male	21.8	25.3	25.1	23.8	-1.1	15.1
	Female	20.9	26.0	24.1	22.9	-1.1	

\* Taken from 2012-13 PDHS

Source: Authors' estimation from the micro-data of RHS, 2015.

## 6.2. Impact of Remittances on Household Health Welfare

The previous Section 6.1 has detailed the socio-demographic, economic and social features of three categories of households: overseas remittances receiving, within-country remittances receiving and non-remittances receiving households. Overall we have found that quality of migration is a significant factor as overseas migrant workers have been earning and remitting more income to their families compared to the within-country migrant workers who have been working outside of their district. The discussion in section 6.1 also reveals that overseas remittances receiving households are socially and economically better compared to the within-country remittances receiving and

<sup>5</sup> The total sampled children were 341, however, some outliers were excluded following WHO recommendation. The study has taken WAZ score from -6 to 5, and -6 to 6 and -5 to 5 for HAZ and WHZ, respectively.



non-remittances receiving households as they have less share in vulnerable employment, higher income and consumption, marked improvement in social and economic status due to migration and better utilisation of various health facilities and health outcomes including nutrition and reproductive indicators. The results are mixed for within-country remittances receiving and non-remittances receiving households, reflecting no major social-economic differences between the two groups.

As noted in methodology that estimating the impact of remittances on household health welfare by simple regression or qualitative response models would yield biased results as overseas remittances are coming to already better-off households so they could not be compared with the other households. To avoid this bias, the Propensity Matching Score (PSM) technique has been applied to analyse the welfare impact of remittances. Following the first step, the determinants of overseas remittances have been given in Table 7 by the logistic regression model where the dependent variable is binary in nature, that is, whether the household has received overseas remittances or not.<sup>6</sup> The results of the logistic regression show that the female-headed households are more likely to receive overseas remittances as compared to male-headed households. Education of the head of the household has a positive impact on overseas remittances. Household size has also a positive impact on overseas remittances.

Table 7

*Determinants of Remittances: Logistic Regression*

Covariate	Coefficients	Standard Error
Sex of head (male = 1)	-1.561*	0.092
Age of head (years)	0.017	0.014
Age square of head	-0.0002**	0.0001
Education of head (illiterate as reference)		
Grade 1-5	0.081	0.115
Grade 6-8	0.481*	0.129
Grade 9-10	0.545*	0.117
Grade 11 and above	0.542*	0.134
Household size	0.105*	0.010
Constant	-0.803**	0.369
N		402

Source: Authors' estimation from the micro-data of RHS, 2015.

Note: \* significance at 1 percent, \*\* significance at 5 percent.

<sup>6</sup>Being no significant difference of within-country remittances households to non-receiver remittances, both are combined for multi-variate analysis.

This brings us to the final stage of the PSM analysis results as presented in Tables 8 and 9 which show the estimated welfare impact of remittances by displaying the *Average Treatment Effect on the Treated* (ATT) against the five key indicators related to the household health (child, mother and overall health) which are child malnutrition, per capita health expenditure, pre-natal care, child delivery in hospital and postnatal care. The bootstrapped standard error, as well as the number of matching cases treated and the size of the control group, are also given in Table 8 and 9. The results in Table 8 show the estimated *Average Treatment Effect on the Treated* (ATT) on the three measures of child malnutrition which are underweight, stunting and wasting.. The results show that the impact of remittances on underweight is negative and statistically significant and also consistent across the three measures of ATT effect. Under the various measures, children belonging to the overseas remittances receiving households are less likely to be underweight as compared to those households which have been receiving remittances either from within country or not receiving remittances at all. However, the welfare impact varies across the three measures as it ranges from 1 percent to 3 percent with the lowest in Kernel method and highest in Nearest Neighbour method. The impact of remittances on stunting and wasting is not statistically significant (3rd and 4th column in Table 8). Though overseas remittances receiving households have, on average, high per capita consumption expenditures, but it may not be translated into better nutrition over the longer perspective to avoid stunting and wasting due to some other factors including life styles, diets and exercise regimes—all the factors we lack information on, may be an overriding determinant of their health outcomes, irrespective of the household's usage of health care services.

Table 8

*Average Treatment Effects Under various Measures of Propensity Score  
Matching and Health Indicators of Child*

Method	Under Weight (yes=1)	Stunting (yes=1)	Wasting (Yes=1)
<b>Nearest Neighbour</b>			
ATT	<b>-0.030</b>	-0.025	-0.023
N. Treated	132	132	132
N. Control	187	192	197
St. Error Bootstrap	0.013	0.023	0.027
t-stat	<b>-2.01</b>	-1.09	-0.87
<b>Kernel</b>			
ATT	<b>-0.014</b>	-0.021	-0.022
N. Treated	132	132	132
N. Control	206	206	206
St. Error Bootstrap	0.006	0.016	0.023
t-stat	<b>-2.35</b>	-1.32	-0.95
<b>Stratification</b>			
ATT	<b>-0.021</b>	-0.019	-0.018
N. Treated	132	132	132
N. Control	206	206	206
St. Error Bootstrap	0.009	0.013	0.017
t-stat	<b>-2.34</b>	-1.45	-1.04

*Source:* Authors' estimation from the micro-data of RHS, 2015.

Table 9 displays the health welfare impact of overseas remittances on prenatal care, child delivery, postnatal care and per capita health expenditures. The second column in Table 9 shows that the impact on prenatal care is positively significant by all the three measures. Compared to the non-treated units, the treated units have a positive welfare impact of 6 to 9 percentage points under the various measures of ATT. The third column shows the impact on postnatal care which is statistically not significant. The fourth column shows the welfare impact of remittances on place of child delivery with a positive welfare gain of 6 percent to 9 percent under various measures of ATT. The last column indicates the impact of remittances on per capita health expenditures which shows that households who have received overseas remittances are, on average, spending more money on health, ranging from Rs 67 to Rs 97 in per capita terms under the various measures of ATT.

Table 9

*Average Treatment Effects Under various Measures of Propensity Score Matching and Health Indicators of Reproductive Married Women (15-49) and Health Expenditure*

Method	Prenatal Care (yes=1)	Postnatal Care (yes=1)	Child Delivery in hospital (yes=1)	Per Capita Health Expenditures (In Rs)
<b>Nearest Neighbour</b>				
ATT	<b>0.061</b>	0.053	<b>0.063</b>	<b>97.4</b>
N. Treated	118	118	118	118
N. Control	178	178	172	184
St. Error Bootstrap	0.020	0.037	0.026	32.6
t-stat	<b>3.10</b>	1.428	<b>2.424</b>	<b>2.99</b>
<b>Kernel</b>				
ATT	<b>0.071</b>	0.020	<b>0.080</b>	<b>66.5</b>
N. Treated	118	118	118	118
N. Control	183	183	183	183
St. Error Bootstrap	0.023	0.032	0.032	33.4
t-stat	<b>3.09</b>	0.62	<b>2.49</b>	<b>1.98</b>
<b>Stratification</b>				
ATT	<b>0.092</b>	0.045	<b>0.085</b>	<b>74.7</b>
N. Treated	118	118	118	118
N. Control	183	183	183	183
St. Error Bootstrap	0.022	0.035	0.035	28.9
t-stat	<b>4.17</b>	1.28	<b>2.421</b>	<b>2.58</b>

Source: Authors' estimation from the micro-data of RHS, 2015.

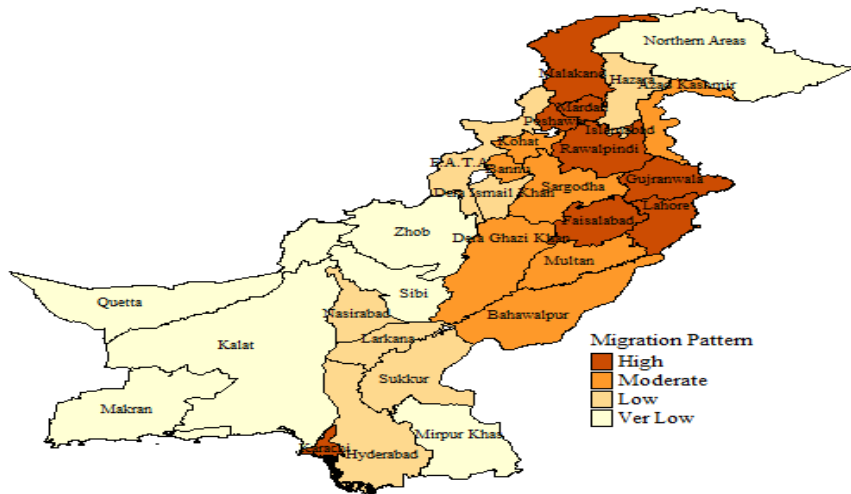
## 7. STYLISED FACTS: IMPACT OF MIGRATION ON HEALTH SEEKING BEHAVIOUR IN PAKISTAN

The historical literature on internal migration is rooted in Development Economic Models i.e. Lewis Theory of development and Harris-Todaro rural-urban migration model which postulate that all countries, at some stage of their

development, have experienced the movement of their labour force from the agricultural sector into the non-agriculture sector. Internal migration in Pakistan is characterised by a very open, laissez-faire policy and the costs of migration are apparently very low. Limited access to land and better economic opportunities in urban areas along with increase in education, have been escalating migration both within district/province and across the districts/provinces of Pakistan. Memon (2005) found rising trends of internal migration in Pakistan and similar finding has been made by 2012 LFS estimates that inter-province migration is growing with urbanisation and development in Pakistan. The 2012 PSLM estimates reveal that around 9 percent of the Pakistani households have received remittances from within the country.

Pakistan has a long history of labour migration and in South Asia, it is the second largest labour sending country (after India). Between 1971 -2014, more than 7.8 million Pakistanis have officially proceeded abroad for employment. Migration from Pakistan peaked in 2012 when more than 600,000 left the country. Out of this total labour export, about 96 percent have proceeded to the six Gulf Cooperation Council (GCC) member states; the key destination is Saudi Arabia followed by UAE, Kuwait, Oman, Qatar and Bahrain. In terms of geographical distribution, more than 50 percent of total emigrants from Pakistan originated from Punjab, followed by Khyber Pakhtunkhwa (KPK) (28 percent), and Sindh (8 percent). More than 60 percent of Pakistanis migrated from only 20 districts, with heavy concentration in Central and Northern Punjab, KPK, only Karachi in Sindh and couple of districts in Southern Punjab (Figure 4). Figure 4 shows that Rawalpindi, Faisalabad, Gujranwala, Peshawar, Mardan, Malakand and Karachi are the high migrant divisions of Pakistan,

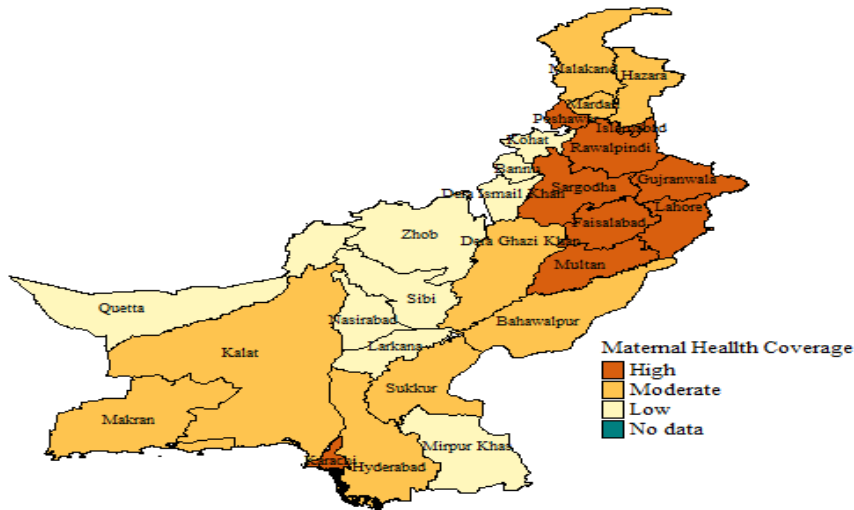
**Fig. 4. Migration Pattern**



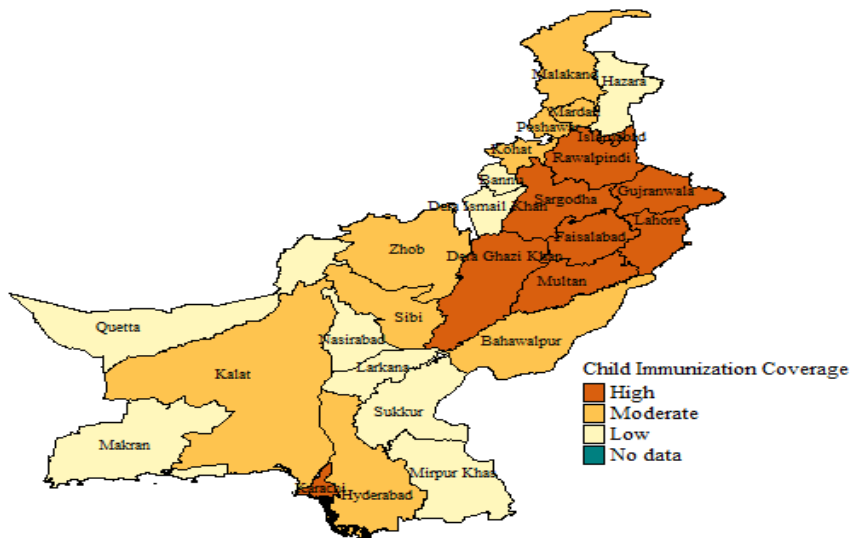
Source: Author's calculation from BEOE Data (2014).

Remittances have been significantly contributing to economic growth [Amjad, *et al.* (2013)] with more allocation of resources on education and health by reducing gender differences [Mansouri (2007)]. They are also saved and invested more as found by Adams (1998) “*In rural Pakistan, the propensity to save on transfer income seems more as compared to income derived from other forms*”.

**Fig. 5. Use of Maternal Health Care Services**



**Fig. 6. Use of Child Immunisation Services**



Over the use of health services including doctor consulted during diseases, maternal health care during pregnancy (before and after) and child immunisation, huge variation has been found across the districts. The data at district level from PSLM reveals that health coverage is high among high migrant districts. Figure 5 and figure 6 clearly present a pattern indicating that the use of health services is relatively high among high migrant districts. This pattern helps to understand the role of remittances in promoting the use of health care facilities at the household level. This paper further investigates the pattern of use of health services at household level across migrants; both domestic and international, and non-migrants.

## 8. CONCLUSION

Given the importance of health in overall living standards of people, the present study has attempted to delve into the role of migration in affecting health status of population. The health spending patterns of the migrant households have been analysed and compared with that of non-migrant households to see whether some difference lies in the magnitude and trends of spending on health care facilities. Moreover a differentiation has been maintained between the migrants who have gone overseas and those who have moved within the country to see whether the place one has migrated to also create a difference in health outcomes. The use of both primary (RHS) and secondary (PSLM) data sources has also been undertaken to get robust results and bridge data deficiencies in order to get reliable estimates. Exploratory data analysis has been conducted on RHS through propensity score matching (PSM) to observe the impact of overseas remittances on health welfare in DG. Khan.

The RHS data reveal that health expenditures as a proportion of average monthly consumption expenditures are higher in households receiving remittances from abroad as compared to those receiving remittances from within the country or those who do not receive remittance at all. Both the RHS and PSLM data show that a higher proportion of the households receiving remittances from abroad seek health care from formal sources. The annual per capita health expenditures are also higher for households receiving remittances from outside the country as compared to those receiving money because of internal migration of member as well as non-migrant households. With respect to child nutrition, the households with international migrants fare better in terms of various indicators of nutrition as compared to households with local migrants and non-migrants. Regarding maternal health, females belonging to overseas remittances receiving households have consulted more from private doctor/clinic than the other two groups, while the least consultation was found for within-country remittances households. There are more deliveries at hospital and less at home in those households which have been receiving overseas remittances. More prenatal care was found among overseas remittances households than the

other two groups while postnatal care does not differ significantly across the three groups.

As part of Propensity Score Matching (PSM), the logistic regression performed on RHS data reveals that female headed households are more likely to receive remittances from abroad whereas overseas remittances are affected positively by education of the head of household and family size. The *Average Treatment Effect on the Treated* (ATT) against the five key indicators related to the household health (child, mother and overall health) which are child malnutrition, per capita health expenditure, pre-natal care, child delivery in hospital and postnatal care show that except for post-natal care, households receiving remittances from abroad have higher child and maternal health welfare effects as compared to the two other groups.

In terms of policy implications, several important conclusions can be formulated. Firstly, strategies need to be designed to increase the reception of remittances because these funds help households to use formal health services and human capital formation. Secondly, considering the weak rates of utilisation of health care facilities in some areas (postnatal care, nutrition), the role of remittances is also important given that, even if they certainly contribute to increase the access of the intermediate and the richest classes of income to private health care services, they make room for the poorest to access the public health care facilities. Therefore, remittances contribute globally to the improvement of access to health of all the layers of the population.

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